

REMARKS

Withdrawal of the final Office Action of September 22, 2006 in view of the new ground of rejection set forth therein is appreciated. In addition, Applicants appreciate withdrawal of the rejections of the claims under §112, second paragraph and under §102(b) for being anticipated by either McDaniel or Yamada.

Now in the Office Action of December 18, 2006, the Examiner rejects claims 1-4, 6, 7, 9-11, and 14-18 under 35 U.S.C. §103(a) for being obvious over U.S. Patent No. 6,225,423 to Andell et al. hereafter (Andell). Reconsideration of this rejection is requested for the following reasons.

The key feature of the present invention is that the polymerizable monomer is added to the porous support before addition of one or both of the metallocene catalyst and the cocatalyst as set forth in claim 1. A preferred method is set forth in claim 2 where the porous support is first treated with the cocatalyst, then with the polymerizable monomer and finally with the metallocene catalyst. Claim 2 has been amended to more clearly claim this order of addition. This method is exemplified by the Examples.

Andell describes a polymerization catalyst system comprising a reaction product of a transition metal compound obtained by the contact between a transition metal compound and an unsaturated organic compound. In all of the Examples of Andell a metallocene (polymerization catalyst) and aluminoxane (cocatalyst) are first combined together before contact with the unsaturated organic compound. The resultant reaction product (formed due to the presence of both the polymerization catalyst and the cocatalyst) is then impregnated onto a silica support. Hence, in order for a reaction product to be formed as required in the teachings of Andell, the cocatalyst must be present.

In the present application the Applicants have found that by impregnating the porous support with the polymerizable monomer before addition of one of the metallocene or cocatalyst or both, the resultant supported catalyst system shows both improved activity and stability over extended periods of time. Page 3, lines 24-27 of the specification.

The Examiner acknowledges that Andell does not teach this order of addition. However, he argues that because the use of the organoaluminum compound (i.e., the cocatalyst) is optional (col. 9, line 6 of Andell, that it could be added subsequent to the treatment of the support with the transition metal compound and the unsaturated organic compound. Page 3, lines 6-8 of the Office Action. This in spite of the fact that such order of addition is never taught in the reference, is never used in any of the Examples and, in fact, is contrary to the teachings of the reference. In the very place where the Examiner notes that the organoaluminum compound is optional, the reference specifically states that though it may be optional, if it is used, it and the transition metal compound “are, in an organic solvent, treated with a little amount of an unsaturated organic compound” i.e., to form the “reaction product” (col. 9, lines 7-8). This, it is submitted, would not suggest to one skilled in the art that the organoaluminum compound could be added subsequently, but rather, that if it is used, it has to be used with the transition metal compound. The only suggestion to activate the system of Andell after contact between the transition metal compound and the unsaturated organic compound comes from a reading of Applicants’ specification, not from anything taught by this reference. In any event, the process of claim 1 is certainly not “expressly disclosed” in Andell as argued by the Examiner on page 3, line 11 of the Office Action.

Contrary to the position of the Examiner, the change in order of addition cannot be considered obvious, because in Andell it is necessary that a "reaction product" be produced between the transition metal compound and the unsaturated organic compound and if an organoaluminum compound is optionally used, it also needs to be included in this "reaction product." Adding it later, as suggested by the Examiner, would be contrary to this requirement of the reference. See claim 4, lines 35-40 where the "reaction product" is defined as being obtained not only from the transition metal compound and the unsaturated organic compound, but also from the organometallic aluminum compound.

The Examiner comments that the Examples do not illustrate the beneficial results achieved by Applicants' claimed process. However, as noted on page 17, lines 17-19 of the results obtained, it "clearly shows that catalysts (prepared according to the invention) are highly active for ethylene polymerisation with a reasonable peak activity and a slow activity decay profile. After 3 hour runs the catalysts still present substantial activity level." More importantly, note Example 7 on page 18 which compared the activity of a catalyst prepared according to the invention (Example 5) with one prepared according to the prior art (Example 6). As noted "Examples 5 and 6 clearly show a less deactivating kinetic profile with the catalyst of the invention than a similar catalyst prepared without the incorporation of a polymerizable monomer."

Withdrawal of the rejection of claims 1 and 2 for being obvious over Andell is, therefore, requested. Since the remaining claims all depend from these claims, it is submitted they are also not obvious over Andell for the same reasons.

The allowability of the subject matter of claims 12 and 13 is appreciated.
However, it is believed claims 1-4, 6, 7, 9-11, and 14-18 are also allowable.

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account 06-0916.

Respectfully submitted,

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